

Food Service System



In a hospital that must serve a thousand or more meals a day, food must be cooked well in advance, stored hot until meal-time, then delivered to patients some distance from the central kitchen. In the process, meals can lose heat, moisture, flavor and nutrients.

A recently-introduced answer to that problem is the 3M Food Service System 2, a system whose origin is rooted in space technology. Developed by 3M Health Care, St. Paul, Minnesota, the system employs a “cook/chill” concept for plating, storing, heating and serving daily meals on a volume basis. It allows hospital and food service staffs to prepare food well in advance, separating the food preparation function from the meal schedule, while maintaining meal quality.

The advantages to the patient, says 3M, are foods that are still hot at serving time, look more appealing, taste better and suffer no loss of nutritional value, because the cook/chill technology helps retain nutrients. The advantages to hospital administrators and food service directors are scheduling flexibility, labor costs estimated at 10-15 percent lower than traditional hot food systems, and reduction of total operating costs by as much as 20 percent.

The key to the cook/chill approach is the technology of integral heating, in which each 3M plate and bowl heats independently, so that hot foods stay hot and



cold foods stay cold. This integral heating method was developed by 3M under NASA contract in 1966-67 for meal service aboard the Apollo lunar spacecraft.

The main component of the Apollo development was a unique, electrically heated, insulated dish that served as both plate and oven when slipped into a control module. The module provided electrical contact and a resistive coating on the bottom of the dish-oven converted electrical energy to heat. In the 1970s, 3M developed a commercial version of the Apollo system that was used by a large number of hospitals and nursing homes. That system, shown **at left**, served as the cornerstone for the Food Service System 2 introduced in 1991.

In the new 3M process, the hot portions of meals are cooked a day or more in advance and chilled in bulk containers. On serving day, the meals — still cold — are portioned and plated (**above**), then assembled on trays in 3M Thermalization Carts. The fully-loaded carts are stored in a refrigerator unit.



At mealtime, the carts are removed from the refrigerator and plugged into a power source in the central kitchen or in separate pantries on each floor. The cart's power module supplies electricity to the 3M dishes which, like their Apollo predecessors, convert electrical energy to heat. Each plate has built-in sensors that monitor and control the heat to maintain each dish at ideal serving temperature.

In just 24 minutes, the thermalization process is completed. The trays are removed from the thermalization cart (**right**) and served to the patient (**below**); the double-walled dish



is insulated so that the outside is cool to the touch. According to 3M, patients have expressed high satisfaction with cook/chill meals and with the trayware, round dishes and bowls in an array of contemporary colors, designed to resemble more closely the dishes used at home. ●